

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: FORREST, SIMON

Application No.: 09/941,539

Filing Date: 08/29/01

For: IMPROVEMENTS TO A TELEVISION  
SYSTEM

Art Unit: UNKNOWN



TRANSMITTAL OF PRIORITY DOCUMENT

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for which the above-identified patent application claims priority from.

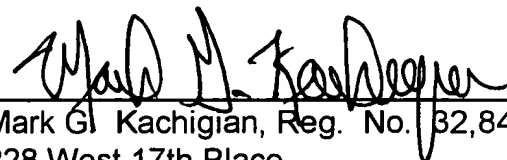
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HEAD, JOHNSON & KACHIGIAN

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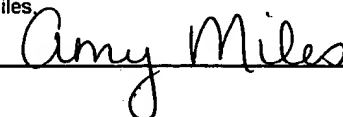
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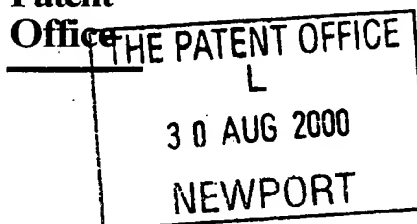
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2.	Pat (The	0021129.2	30 AUG 2000	30 AUG 2000 E504129 to 540344 F01/7700 0.00-0021129.2
3.	Full name, address and postcode of the or of each applicant ( <i>underline all surnames</i> )	<b>Pace Micro Technology Plc</b> Victoria Road Saltaire Shipley BD18 3LF		
	Patents ADP number ( <i>if you know it</i> )			
	If the applicant is a corporate body, give the country/state of its incorporation	UK 7588569001		
4.	Title of the invention	Improvements to a Television System		
5.	Name of your agent ( <i>if you have one</i> )	Bailey Walsh & Co.		
	"Address for service" in the United Kingdom to which all correspondence should be sent ( <i>including the postcode</i> )	5, York Place Leeds LS1 2SD		
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6.	If you are declaring priority from one or more earlier patent applications, give the and the date of filing of the or of each of these earlier applications and ( <i>if you know it</i> ) the or each application number	Country	Priority application number ( <i>if you know it</i> )	Date of filing ( <i>day / month / years</i> )
7.	If this application is divided or otherwise derived from an earlier UK application, the earlier application	Number of earlier application	Date of filing ( <i>day / month / years</i> )	
8.	Is a statement of inventorship and of right to grant of a patent required in support of this request? ( <i>Answer "Yes" if:</i>	Yes		
	a) any applicant named in part 3 is not an inventor, or			
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Description 5

Claim(s)

Abstract

Drawing(s)

1 x 11

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Priority Documents

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Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

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## Improvements to a Television System

The invention to which this application relates is to an improvement to a television system and, in particular, to a system which incorporates a large number of channels which are available for selection for viewing by a user.

With the advent of digital data transmission systems in which television programmes can be generated, the data is transmitted via any of satellite, cable and/or terrestrial data broadcast systems. Regardless of which system is used, there is always a need to optimise the use of available data capacity for translation of data. The ability of digital data to be encoded into reduced size and then decoded at reception makes the same particularly attractive and allows the increased number of channels which are now available for selection for viewing in comparison to say 10 years ago.

A further development is to provide in a broadcast data receiver or in connection therewith, a storage means such as for example a random access memory in the form of a hard disc, similar to that which is used in personal computers but of increased capacity. The broadcast data receiver is provided with means to allow the selective storage of received data into the hard disc and also allow the selective retrieval of portions of said data for processing at a later time and for the generation of video and audio therefrom by a user in their premises via the television set. The ability to store data rather than simply process and display same at the time of reception, represents a considerable step forward and the aim of the present invention is to provide a use of this storage capacity to, in turn, make available bandwidth capacity to the broadcaster of the data to allow further and alternative data to be broadcast for reception by the broadcaster data receivers.

In a first aspect of the invention there is provided a broadcast data receiver, said broadcast data receiver having a storage means for the reception and storage of selected portions of data which are transmitted from a remote location, said receiver capable of receiving data broadcast from the remote location over data signal bandwidth and for the selective processing and display or storage of said data when received, and wherein, in the transmission of data, those channels on which new and changing data is broadcast for a limited period of time in any given period, are identified to the broadcast data receiver and, in those time periods outside the given period of time, a repeat signal is transmitted at spaced intervals and, between said spaced intervals, a display is generated on screen for that channel by the broadcast data receiver with reference to data held in the storage means.

By allowing for the reference to data held in a storage means for generating a fixed display or a repeated video display, so there is no longer a need for said video for said fixed display or repeated video display, to be continuously transmitted to the receiver. This in turn means that bandwidth capacity is released and can be used for the transmission of other data as required by the broadcaster.

In one embodiment, if a fixed screen display is generated in the time period in which no television programmes are transmitted on a given channel, then the fixed screen display data may only be transmitted once, at the end of the transmission of television programmes on that channel, said data stored in the storage means in the broadcast data receiver and then referred to thereafter until the channel again commences showing television programmes.



Alternatively, and particularly if a repeated video display is shown rather than a fixed display, the data for the repeated video display may be sent every 1/2-hour or hour and stored in the storage means and can be referred to until the next set of data is transmitted.

In addition to allowing bandwidth capacity to be freed for the broadcaster, the channel operator or provider can still be satisfied in that the fixed display or repeated video display is still being generated and hence, to the user of the apparatus, there is still the appearance that the particular channel is available.

A specific embodiment of the invention is now described with reference to the accompanying drawings, wherein:-

Figure 1 illustrates, in schematic fashion, how data for video and/or audio can be obtained by a broadcast data receiver and process in accordance with the present invention.

The invention will now be described with reference to two forms of channel, the data for which is provided by a broadcaster from a remote location via any of satellite, cable or terrestrial transmission systems to a number of broadcast data receivers, one of which 4 is shown in Figure 1.

A first type of channel is that which continuously displays television programmes and is therefore showing television programmes available for selection by the user of the broadcast data receiver 24 hours a day, 7 days a week. The provision of this service is not affected by the current invention in that data is transmitted to the broadcast data receiver 4, via a transmission system 2, processed and video and audio data generated by the broadcast data receiver is sent to, in this case, a

television set 6, via connection 8. It should be noted that in this case the broadcast receiver is shown as being separate to the television set but could equally be incorporated within the television set itself.

The second type of channel and that type which is affected by this invention, is a channel which is active for a certain period of time in any given period such as for example a television channel which shows television programmes between the times of 7pm and midnight but for the rest of the time in any 24-hour period is inactive. For the duration of the period of showing television programmes then the process as described with reference to the first type of channel is equally applicable. However, when the end of that period is reached, say for example, midnight, then in accordance with the invention, data relating to an on-screen display which is to be shown for that channel location between midnight and 7pm is transmitted by the broadcaster to the broadcast data receiver. This data can be used to implement a fixed screen display which perhaps indicates the channel name or may be a repeated video display which can indicate perhaps television programmes which are available for viewing on the next evening or the like. This data is processed and used to generate a display on screen but in addition, can be stored in a storage means 10 provided in the broadcast data receiver. Thus, when the sufficient data has been transmitted and stored to allow the generation of the display on screen, then the broadcaster can cease to transmit the data for at least a time period. Thus, in effect, no repeat sets of data are then transmitted and instead, if a user selects to view the particular channel in question, the broadcast data receiver, rather than searching for newly transmitted data refers to the data in the storage means, identifies the portion of data required to allow the onscreen display to be generated and does so.

Thus, to the user, there is no difference to the conventional approach but to the broadcaster, bandwidth capacity is freed as they no longer need to continually transmit data for the onscreen display. When one considers that bandwidth capacity can be at a premium, this is an important freeing of bandwidth. The broadcaster can then use this bandwidth for other purposes such as to increase the available number of panels for which data can be transmitted during these time periods over and above the current numbers and/or increase the bit rate and hence quality of data for the existing channels.

There are thus a number of benefits to both the broadcaster and user in that to the user, it can be used to increase the perceived channel choice although some of the channels as discussed above aren't being broadcast continually; however the impression to the user is that the channel is available. There is a reduction in overall signal bandwidth requirement in that bandwidth is only required when broadcasting data for the fixed display or the repeated video display and once stored in the storage means, that broadcast can be terminated and the signal bandwidth used for other purposes. Furthermore, many channels can be provided via this mechanism with the number of channels limited only by local storage capacity of the storage means. One possible use of the additional bandwidth which becomes available is for additional advertising or advertising services to be generated by the broadcaster and hence increase their revenue.

In a further embodiment, the broadcast data receiver may itself monitor the user's viewing habits and programme preferences and then decide on this basis, to decide from which channels to accept continued live data and which channels to refer to storage.

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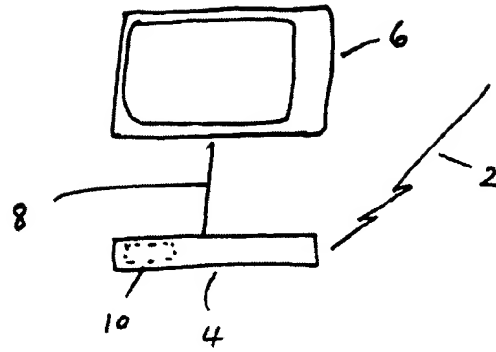


Figure 1

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